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Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
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Ex Parte Communication

In re: 700 MHz Interoperable Broadband Public Safety Network
WT Docket No. 06-150, PS Docket No. 06-229,
GN Docket Nos. 09-47, 09-51, 09-137, RM Docket No. 11592

Dear Ms. Dortch:

AT&T Services, Inc. ("AT&T") submits this letter to address the August 24, 2010 T-Mobile Ex Parte letter submitted in this docket with accompanying white paper authored by Roberson and Associates, LLC entitled *Whitepaper: Technical Analysis of the Proposed 700 MHz D-Block Action*, advocating auction of the 700 MHz D-Block. The Commission should disregard the faulty conclusions reached in the White Paper, as they rely on scenarios that are unrealistic and adverse to public safety. Yet, even if the proposals in the White Paper were plausible, they would still require substantial changes in public safety ecosystems and are at best speculative. The D-block presents a unique opportunity to provide public safety with the capacity to meet current and long-term anticipated needs, both day-to-day and in emergency situations. Simply stated, the cost of meeting public safety's spectrum needs in the future if T-Mobile is wrong are substantially higher than the public interest benefits if T-Mobile is correct. This opportunity should not be squandered.

In the White Paper, the author argues that 10 MHz of broadband spectrum operating on an LTE network will meet public safety's day-to-day and incident scene needs, but then conditions its position on use of the 4.9 GHz band to supplement the 10 MHz and a high density public safety network build. In other words, 10 MHz is NOT sufficient to meet public safety's day-to-day or incident needs unless events that are unrealistic or adverse to public safety occur.[1] For instance, current estimates are that a (10 MHz) 5X5 MHz system would have downlink speeds of between 2.5 and 6 Mbps and uplink speeds of 1 to 2.5 Mbps. Yet, several public safety agencies have demonstrated a need for up to 3 Mbps per camera for fixed and mobile surveillance video from

[1] The FCC white paper similarly concluded that 10 MHz can meet public safety needs only with certain conditions—a high density network build and priority access on commercial networks. *See* FCC White Paper, The Public Safety Nationwide Interoperable Broadband Network: A New Model for Capacity, Performance, and Cost (June 2010).

fixed cameras throughout a city to public safety vehicles in the field.[2] This fact alone negates the position that 10 MHz is adequate for an interoperable broadband public safety network.

AT&T has maintained from the beginning of this proceeding that additional spectrum will be needed; a fact shared by Chairman Genachowski and Chief Barnett in their remarks following the introduction of the National Broadband Plan[3]. Admiral Barnett's comments were the most straight-forward in stating "In the long run, though, we recognize that public safety, like all other broadband users, will need access to more spectrum than is available today. This is because demand for high-bandwidth applications will increase, and we also expect that the public safety broadband network will eventually evolve to support mission-critical voice as well as data."[4] AT&T believes that the question is not *if*, but *when*, public safety needs more spectrum. The cost of missing this one-time opportunity to provide public safety a contiguous 20 MHz block of spectrum are too extreme to ignore. AT&T estimates that the capital investment to add non-contiguous spectrum to a cell site at a later date will at least double that of a cell site that is built with contiguous spectrum from the beginning. Additionally, if non-contiguous spectrum must be added after public safety networks are deployed, all of the devices that public safety is using at that time will need to be replaced with new custom devices that employ the new non-contiguous spectrum. These new devices would most likely be unique to public safety and, thus would be very expensive to develop for a very small audience, which frustrates the economies of scale goal of the National Broadband Plan.[5]

Further, the 4.9 GHz band does not resolve these problems, as it is ill-suited for public safety deployments. The current deployment of 4.9 GHz is not adequate to support public safety on a nationwide basis. This spectrum band has limited range, which presents problems with rural coverage, and provides poor in-building coverage due to its limited ability to penetrate walls. The best application of 4.9 GHz spectrum is as a point to point solution, which is inadequate to meet public safety's interoperability and mobility goals. Moreover, the 4.9 GHz band is already in use for communications, with thousands of devices already deployed for traffic control, camera back-haul, and in aircraft video relay. Even though this spectrum is licensed to public safety, multiple government entities have parallel authority to operate in the same geographic area with no resolution or priority process in place. Lastly, reliance on the 4.9 GHz band instead of a full 20 MHz of 700 MHz spectrum would add tremendously to the backhaul needed to transmit data and add multiple layers of devices and air links. These facts were succinctly stated by the City of Boston:

> [A] 4.9 GHz network has significant drawbacks including: 1) interoperability is undermined by the lack of technical standards and the absence of regional planning; 2) the band's poor propagation characteristics undermine the large-area coverage required to support public

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[2] Support for D Block Allocation for Public Safety: Congressional Briefing Packet, Public Safety Alliance, p. 10. (Jan. 12, 2010).
[3] Federal Communications Commission Chairman Julius Genachowski, Prepared Remarks for Public Safety Briefing, P. 4, Washington, D.C. (Feb. 25, 2010).
[4] Federal Communications Commission Public Safety & Homeland Security Bureau Chief, Rear Admiral (Ret. Navy) James Arden Barnett, Jr., Press Availability Forum, p. 8 (Feb. 25, 2010).
[5] Federal Communications Commission, *Connecting America: The National Broadband Plan*, p. 16 (rel. March 16, 2010).

> safety operations in the City, . . . and 3) the cost to deploy and maintain this system is higher than expected due to the large amount of infrastructure required to maintain adequate coverage. Use of the 700 MHz band would allow Boston to achieve greater interoperability, cost effectiveness, and increased coverage because of the 700 MHz band's superior propagation characteristics.[6]

Neither is the idea of a high density network build a cure-all. It is certainly true that building additional cell sites often leads to an increase in capacity, as a provider can cell split and reuse frequencies. However, this approach could require up to twice the number of cell sites than would otherwise be required in a regional approach, with little practical regard to whether such dense build-out is actually needed, the most efficient means to provide network capacity, or economically viable. In fact, such a dense network build is not needed, is the least efficient means to provide network capacity, and risks saddling public safety with substantial, unnecessary long term costs.

In any wireless network design, the amount of spectrum is typically inversely related to the number of cell sites. In other words, a 2 x 10 MHz allocation would allow public safety to add capacity with fewer cell sites than a 2 x 5 MHz allocation, which would require more cell sites. Of course, adopting a network design that requires high tower density has a direct impact on the capital costs to deploy the network and, perhaps more importantly, on the ongoing operational costs for running the network year after year. These operational costs will ALWAYS be higher with a high tower density network. This is one of the reasons why commercial operators spend billions of dollars on spectrum, and why reallocation of the D-block spectrum to public safety is the nation's investment in public safety, best serves public interest and makes the most long term sense.

The White Paper also concludes that existing public safety narrowband voice channels could be used for broadband applications. While this idea could be further studied for flexible use in the long-term, the use of public safety narrowband channels as a primary component of a soon-to be deployed nationwide public safety broadband network would present a myriad of problems. Narrowband solutions are currently used to provide many mission critical functions. Relocating current users from that spectrum throughout the United States would not only strand those capital investments, but would also result in substantial additional costs for new equipment to replace those capital investments. Further, the United States Department of Justice has expressed its plan to continue using narrowband channels now and in the future.[7] Current technical limitations also act as an impediment to nationwide use of narrowband channels for a broadband network in the near-term, as the technology is not conducive to unit-to-unit communication or talk-around capability.

Though the White Paper proposes reauction of the D-block, it fails to present a workable solution for band interference between public safety and the commercial D-block network. The White Paper suggests that a high density network build would prevent interference, but, as explained above, this ignores the problems of cost, which can be prohibitive to the network build-out. Band interference is eliminated in a reauction scenario only if the majority of public and commercial sites are

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[6] City of Boston, Amended Request for Waiver, pp. 4-5 (filed May 28, 2009).
[7] United States Department of Justice, FY 2011 PERFORMANCE BUDGET Congressional Submission, Law Enforcement Wireless Communications (LEWC), *available at* http://www.justice.gov/jmd/2011justification/ pdf/fy11-lewc-justification.pdf.

collocated on the same structures—an unrealistic scenario. The only way to mitigate the interference issue is to build a public safety broadband network with all 20 MHz of available spectrum, including the D-block. This provides the most elegant technical and most cost-effective solution.

It is also clear that public safety's future spectrum needs have been drastically underestimated. The commercial sector has experienced over a 5000% increase in data transmission in the last three years. As has been highly publicized in the media, carriers are racing to meet the capacity demand of broadband networks. As Next Generation broadband public safety applications and Next Generation 911 applications come online in the next few years, there will likewise be an unprecedented increase in the demand for capacity on public safety networks. Public safety needs it own dedicated spectrum to build out these networks and should be allowed to manage this spectrum independently.

Reallocating the D-block spectrum to public safety use is clearly the most cost effective solution for implementing public safety broadband networks. It takes advantage of the spectral efficiencies of combining 20 MHz of contiguous spectrum, provides efficiencies for handset manufacturers, and provides for local government agencies to own, control, and build out their own networks. And, in addition to nearly universal public safety support for reallocation of the D-block, many state and local governments also support reallocation because it is the most common sense and technically elegant solution for public safety.

Pursuant to Section 1.1206 of the Commission's rules, an electronic copy of this letter is being filed for inclusion in the above-referenced docket.

Respectfully submitted,

/s/ Jim Bugel

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